

Appendix A

Operational Unit 5-12 Remedial Design/Remedial Action Contaminated Soil Sites Remediation Project

Appendix A

OU 5-12 RD/RA Contaminated Soil Remediation Projects

A-1. Introduction

This Operable Unit (OU) 5-12 Remedial Design/Remedial Action (RD/RA) Health and Safety Plan (HASP) appendix establishes the procedures and requirements that will be used to eliminate and/or minimize health and safety risks to personnel working on the Contaminated Soil Remediation Projects. For information on the requirements of the Occupational Safety and Health Administration (OSHA) standard, 29 *Code of Federal Regulations* (CFR) 1910.120/1926.65, “Hazardous Waste Operations and Emergency Response (HAZWOPER),” see Section 1 of this HASP.

A-1.1 INEEL Site Description

For details on the location and operational history of the Idaho National Engineering and Environmental Laboratory (INEEL) and the Power Burst Facility/Auxiliary Reactor Area (PBF/ARA), see Section 1 and Figures 1-1 and 1-2 of this HASP.

A-1.2 Scope of Work

The Contaminated Soil Projects remedial action addresses the risk associated with a collection of several individual sites where contaminated soil is the only source medium (ARA-01, ARA-12, and ARA-23). The soil sites are contaminated with radionuclides and toxic metals. Unacceptable risk to human health or the environment from contaminated soil sites designated as ARA-01, ARA-12, and ARA-23 have been identified. Removing all soil that is contaminated with concentrations in excess of the remediation goals will mitigate these threats. The remediation of the soil sites will be performed in accordance with the project RD/RA work plan, including, but not limited to, the following activities:

- Soil contaminated with concentrations in excess of the remediation goals will be removed using conventional earth-moving equipment (e.g., scrapers and backhoes).
- Areas that have been excavated to depths greater than 0.3 m (1 ft) will be backfilled with clean soil or sloped to promote drainage. All excavations will be contoured to match the surrounding terrain and vegetated.
- Contaminated soil will be characterized and sent to the INEEL CERCLA Disposal Facility (ICDF) or another location within the INEEL for permanent disposal.
- Existing institutional controls will be maintained until the selected remedy has been implemented at the contaminated soil sites. Institutional controls will not be required after remediation if all contaminated media are removed to basalt or if contaminant concentrations are comparable to local background values. Otherwise, postremediation institutional controls consisting of signs, access controls, and land-use restrictions will be established and maintained until discontinued based on the results of a 5-year review.

A-1.2.1 ARA-01: ARA-1 Chemical Evaporation Pond

The ARA-01 site is a shallow, unlined surface impoundment, roughly 30 × 90 m (100 × 300 ft) in size, which was used to dispose of laboratory wastewater from the ARA-I Shop and Maintenance Building (ARA-627). Located southeast of ARA-I, the pond was constructed in 1970 by excavating soil to create a shallow topographic depression. Basalt outcrops are present within and immediately adjacent to the pond. The subsurface immediately beneath the pond consists of fracture and rubble zones. No interbed was found within the first 36 m (118 ft).

From 1970 to 1988, the pond received process discharges that contained small quantities of radioactive substances, acids, bases, and volatile organic compounds. Since 1988, the pond has been dry except during spring runoff and heavy precipitation.

The ARA-01 Chemical Evaporation Pond will be remediated to address the risk to human and ecological receptors posed by contaminated soil. Samples collected in 1997 yielded concentrations of Am-241, Cs-137, Sr-90, U-235, Pu-238, Pu-239/-240, Ra-226, arsenic, lead, and thallium in excess of contaminant screening levels for human health. Concentrations of antimony, arsenic, cadmium, chromium, copper, lead, selenium, silver, thallium, vanadium, and zinc above screening levels for the ecological risk assessment.

A-1.2.2 ARA-12: ARA III Radioactive Waste Leach Pond

The ARA-12 site is an unlined surface impoundment with approximate dimensions of 115 × 50 m (370 × 150 ft). The pond was constructed in a natural depression west of ARA-III to dispose of low-level liquid waste from reactor research operations. Liquid waste was stored temporarily in tanks, then transferred to the leach pond via an underground pipe. Effluent contained low-level radioactive material. A second, separate discharge line originated in an uncontaminated water storage tank. The pond also received facility runoff through a culvert. The ARA-III facility was an active reactor research facility from about 1959 to 1965. From 1966 to 1987, activities at ARA-III were limited to component and instrumentation testing, instrumentation development and fabrication, and chemical research. Waste associated with these activities was not disposed of in the leach pond, and the only discharges to the pond during this period were from the water storage tank and facility runoff. The facility was shut down in 1987, leaving the pond dry except during spring runoff and heavy precipitation. In 1991, the culvert was plugged in preparation for decontamination and dismantlement (D&D) operations at ARA-III, and in 1993, the tanks and waste lines to the leach pond were removed.

Remedial action is required for the ARA-12 Radioactive Waste Leach Pond to address the risk to human and ecological receptors posed by contaminated soil. The ARA-12 site contaminants of concern for human health risks are from chromium, lead, manganese, Ag-108m, Am-241, Co-60, Cs-137, Pu-238, U-234, and U-238. The ecological risks are from arsenic, benzo(a)pyrene, cadmium, chromium, copper, lead, manganese, mercury, selenium, silver, and zinc.

A-1.2.3 ARA-23: Radiologically Contaminated Soils at ARA-I and ARA-II

The ARA-23 site is a 17-ha (42-acre) windblown contamination area surrounding ARA-I and ARA-II. The site also contains subsurface structures remaining after decontamination and dismantlement (D&D) within the ARA-I and ARA-II facilities. The 1961 SL-1 accident and subsequent cleanup radiologically contaminated the soil. Minor amounts of contamination may have been added by other ARA operations. Over time, winds dispersed the contamination over an area roughly 100 hectares (240 acres) in size, but soil concentrations over most of the area are significantly less than risk-based remediation goals. The long axis of the roughly oval-shaped site is consistent with the generally southwest-to-southeast winds common at the INEEL.

Remedial action is required for the ARA-23 radiologically contaminated soils to address the risk to human health posed by contaminated soil. The ARA-23 site was retained for quantitative risk assessment in the comprehensive Baseline Risk Assessment (BRA) to evaluate the human health risk potential from Am-241, Cs-137, Ra-226, Sr-90, Th-230, and U-235 detected in the soil. The site was also retained for qualitative risk evaluation of Cs-137 data obtained with the global positioning radiometric scanner (GPRS). Because ARA-23 encompasses the ARA-I and ARA-II facilities and the SL-1 Burial Ground, 15 other sites (i.e., ARA-01, -02, -03, -04, -05, -06, -07, -08, -09, -10, -11, -16, -17, -19, and -25) fall within the boundaries of the windblown contamination area as originally defined. Several of these sites were retained for quantitative analysis in the Remedial Investigation/Baseline Risk Assessment (RI/BRA) (Holdren et al. 1999). Others were eliminated from further evaluation. However, residual soil contamination at these 15 sites was probably generated by the same sources as the ARA-23 contamination. Therefore, all residual soil contamination in ARA-23 not specifically addressed for another individual site will be addressed as part of the RD/RA with ARA-23.

A-2. KEY SITE PERSONNEL RESPONSIBILITIES

The organizational structure of this project reflects the resources and expertise required to perform the work while minimizing risks to worker health and safety, the environment, and the general public. The names of the individuals in key roles at the site, and lines of responsibility and communications are shown in the project organizational chart (Figure A-2.1). Descriptions and responsibilities of the key site personnel are detailed in Section 2 of this HASP.

A-3. RECORDKEEPING REQUIREMENTS

There are no site-specific changes for recordkeeping requirements. Refer to Section 3 of this HASP for requirements regarding recordkeeping for this project.

A-4. PERSONNEL TRAINING

All site personnel will receive training as specified in Section 4 and Table 4-1 of this HASP as a minimum. Before beginning work at the site, site-specific training will be conducted, including a complete review of this HASP and this appendix. This review will include time for discussion and questions. Upon completing site-specific training, personnel will sign the training acknowledgement form indicating that they have received this training, understand the tasks and associated hazards, and agree to follow all HASP and other safety requirement documents. The Field Team Leader (FTL) will be responsible for verifying all personnel working at the site have completed the training specified in Table 4-1 before permitting personnel to enter the work site.

A-5. OCCUPATIONAL MEDICAL SURVEILLANCE PROGRAM

Based upon the existing site-specific sampling information available for this project, there are no additional Occupational Medical Surveillance Program requirements. Refer to Section 5 of this HASP for information regarding the INEEL Occupational Medical Surveillance Program requirements.

A-6. ACCIDENT PREVENTION PROGRAM

The activities addressed in this appendix will be performed under approved work order documentation written and authorized per the requirements of Standard (STD)-101, "Integrated Work Control Process." Refer to Section 6 of this HASP for information regarding the Accident Prevention Program requirements.

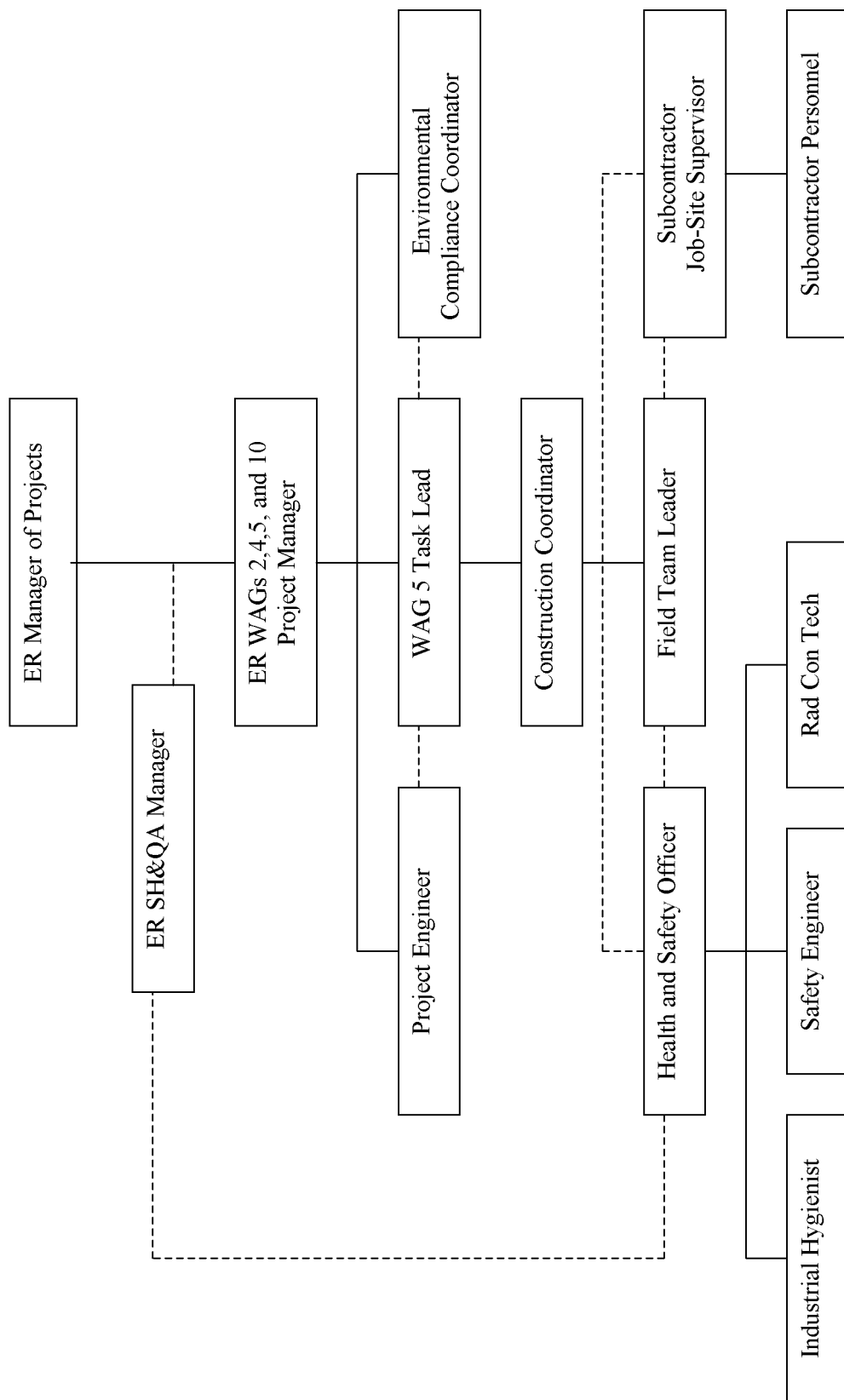


Figure A-2.1. Field organization chart for OU 5-12 RD/RA contaminated soil sites remediation projects.

A-7. SITE CONTROL AND SECURITY

Refer to Section 7 for definitions and descriptions of the various work zones and areas used to control site access and work tasks. The Health and Safety Officer (HSO) will be responsible for working with the Industrial Hygienist (IH), Safety Engineer (SE), and Radiological Control Technician (RCT) to establish the site boundaries. As a minimum, the site control zones will consist of an Exclusion Zone established around the soil disturbance areas. A Contamination Reduction Zone/Contamination Reduction Corridor (CRZ/CRC) will be established around the entire Exclusion Zone. A Support Zone will be established outside of the CRZ/CRC to provide a clean area for materials staging and administrative activities. Radiological Zones will be established per the RadCon evaluation and will be arranged to correspond with the site control zones. The work zones and radiological zones will be continually evaluated by the FTL and HSO and adjusted, as needed, upon consultation with the RCT, IH, and SE. Figure A-7.1 provides a general map for establishing the zones.

A-8. HAZARD ASSESSMENT

Section 8 of this HASP provides general information regarding the types of hazards that may be encountered while performing OU 5-12 RD/RA work. Specific hazards associated with the Contaminated Soil Sites Remediation Projects as identified on the Hazard Identification and Mitigation Checklist per STD-101, and the Hazards Identification and Mitigation process, are presented in this section.

The general hazards identified for the remediation activities at the contaminated soil sites are summarized in Table A-8.1. Each of these hazards is discussed in Section 8 of this HASP. The FTL and HSO will ensure all personnel are provided site-specific training per Section 4 of this HASP that includes each of these hazards and the mitigation in Section 8 before permitting personnel to work at these sites.

Personnel will be potentially exposed to chemical and radiological agents while working at the OU 5-10 RD/RA Contaminated Soil Project Sites. The magnitude of these hazards to personnel entering the work zones is dependent on both the chemical/radiological nature of the contaminants encountered and the intrusive tasks being performed. Table A-8.2 lists the radiological and nonradiological contaminants, routes of exposure, symptoms of overexposure, and overexposure potential.

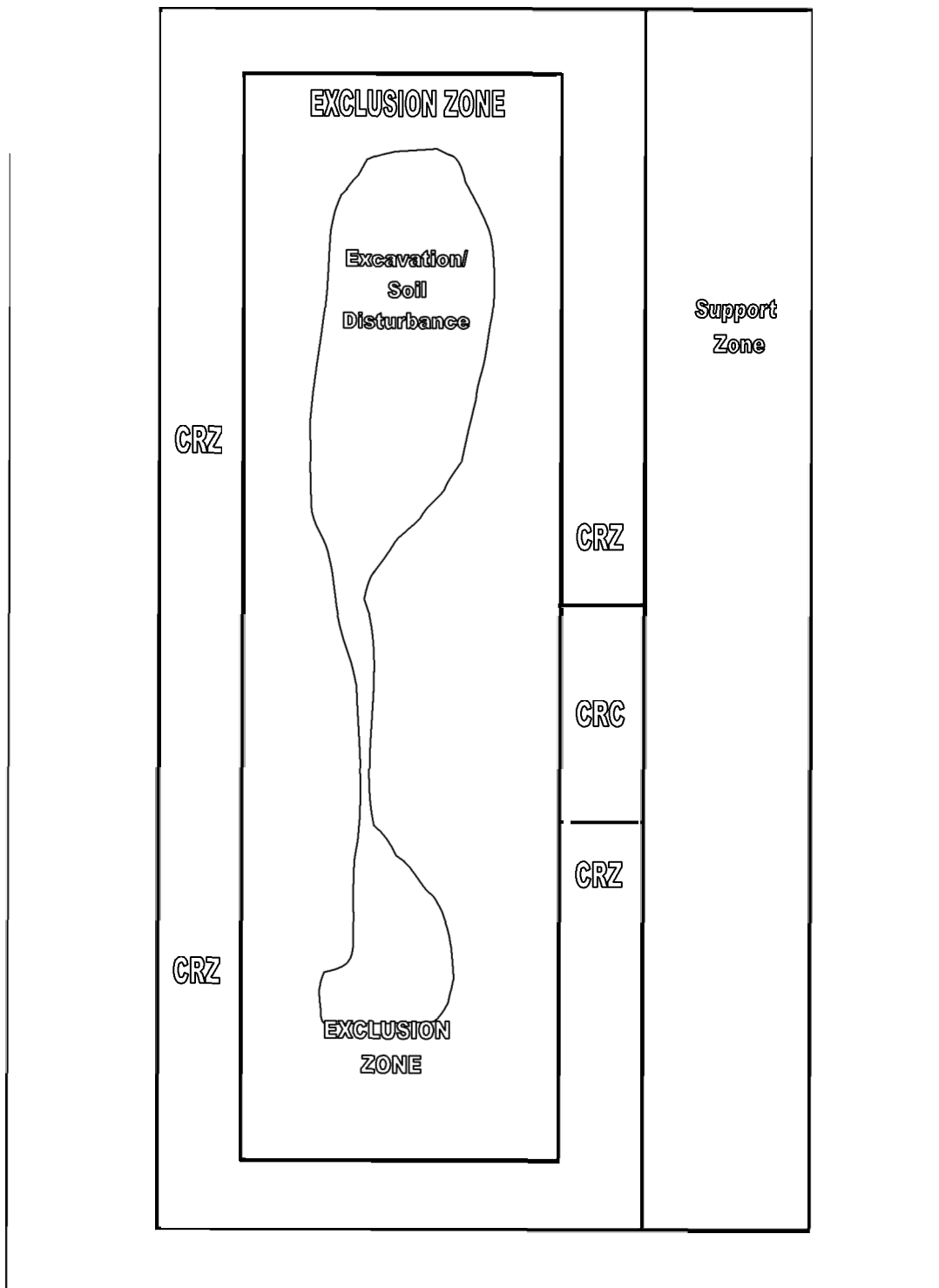


Figure A-7.1. Example of site control zones.

Table A-8.1. Activities and associated hazards at contaminated soil sites.

Activity or Task	Associated Hazards or Hazardous Agent
Mobilization	Equipment movement Heat/cold stress Manual material handling Radiological exposure Slip/trip hazards due to walking/working surface
Performance of Work/Soil Disturbances	Radiological exposure Chemical/inorganic contaminants/dust exposure Equipment movement Hoisting and rigging Repetitive motion Manual material handling Fuels/flammable liquids Slip/trip hazards due to unstable working surfaces Noise Confined space Fall hazards Excavation/surface penetration Biological hazards Heat/cold stress
Demobilization	Equipment movement Slip/trip hazards due to walking surfaces Heat/cold stress Manual materials handling Radiological exposure

Table A-8.2. Radiological and nonradiological contaminants.

Site	Material or Chemical	Route of Exposure	Symptom of Overexposure/Target Organs or System	Overexposure Potential
ARA-12	Radiolonuclides Ag-108m	Inh, Ing, external exposure	NA/Lung, bone marrow, kidney, whole body	Low
ARA-01, ARA-12, ARA-23	Am-241	Inh, Ing, external exposure	NA/Lung, bone marrow, kidney, whole body	Low
ARA-12	Co-60	Inh, Ing, external exposure	NA/Lung, bone marrow, kidney, whole body	Low
ARA-01, ARA-12, ARA-23	Cs-137	Inh, Ing, external exposure	NA/Lung, bone marrow, kidney, whole body	Low
ARA-01, ARA-23	Sr-90	Inh, Ing	NA/Lung, bone marrow, kidney, whole body	Low
ARA-12	U-234	Inh, Ing, external exposure	NA/Lung, bone marrow, kidney, whole body	Low
ARA-01, ARA-23	U-235	Inh, Ing, external exposure	NA/Lung, bone marrow, kidney, whole body	Low
ARA-01, ARA-12	Pu-238	Inh, Ing, external exposure	NA/Lung, bone marrow, kidney, whole body	Low

Table A-8.2. (continued).

Site	Material or Chemical	Route of Exposure	Symptom of Overexposure/Target Organs or System	Overexposure Potential
ARA-01	Pu-239/-240	Inh, Ing	NA/Lung, bone marrow, kidney, whole body	Low
ARA-01, ARA-23	Ra-226	Inh, Ing, external exposure	NA/Lung, bone marrow, kidney, whole body	Low
ARA-01	Metals Arsenic	Inh, Abs, Contact, Ing	Ulceration of nasal septum, dermatitis, gastrointestinal (GI) disturbances, respiratory irritation, hyperpimentation of skin/liver, kidneys, skin, lungs, lymphatic system	Low
ARA-01, ARA-12	Lead	Inh, Ing, Contact	Weakness, insomnia, facial pallor, anorexia, weight loss, malnutrition, constipation, abdominal pain, colic, anemia, tremors, encephalopathy, nephropathy, eye irritation, hypotension/GI tract, central nervous system (CNS), kidneys, blood	Low
ARA-12	Manganese	Inh, Ing	Parkinson's, asthenia, insomnia, mental confusion, metal fume fever, dry throat, cough, tight chest, low back pain, fatigue/respiratory system, CNS, blood, kidneys	Low
PBF-16	Mercury	Inh, Ing, Abs, Contact	Ataxia, dysarthria, vision/hearing, spastic/jerky movements, dizziness, salivating, nausea, vomiting, diarrhea, constipation, skin burns, emotional distress/CNS, kidneys, eyes, skin	Low
ARA-01	Thallium	Inh, Abs, Ing, Contact	Nausea, diarrhea, abdominal pain, vomiting, ptosis, strabismus, tremors, chest pain, pulmonary edema, chorea, psychosis, liver/kidney damage, eyes, CNS, lungs, kidneys, liver, GI, hair	Low

Engineering and administrative controls will be implemented (whenever possible), along with adequate work practices, real-time monitoring of contaminants, and site-specific hazard training to further mitigate potential exposures and hazards. Table A-8.3 lists monitoring equipment for the radiological and nonradiological hazards.

Table A-8.3. Monitoring equipment for radiological and nonradiological hazards.

Monitored or Sampled Hazard	Monitoring/Sampling Equipment Method
Radionuclides (beta-gamma)	Ludlum 2A or equivalent
Radionuclides (alpha)	Ludlum 61 or equivalent
Metals	Sampling pump with appropriate collection media (per applicable NIOSH or OSHA method)
Noise	Sound level meter and/or noise dosimeters
Heat/Cold Stress	Heat Stress – WBGT, body wt, fluid intake Cold Stress – ambient air temperature, wind chill charts

Air sampling will be conducted, as deemed appropriate, by the project IH and RCT based upon initial direct-reading instrument data, swipes, and other site factors.
WBGT = Wet Bulb Globe Temperature.

A-9. PERSONAL PROTECTIVE EQUIPMENT

The personal protective equipment (PPE) requirements for the OU 5-12 RD/RA Contaminated Soil Sites Remediation Projects is provided in Table A-9.1. Refer to Section 9 of this HASP for additional descriptions and requirements on PPE.

A-10. DECONTAMINATION PROCEDURES

Every effort will be made to prevent the contamination of personnel and equipment through the use of engineering controls, good work practices, and personal protective equipment. The IH and RadCon will specify PPE requirements to prevent personnel contamination as well as specifying the sampling methods and decontamination process used. Dry decontamination of equipment used in support of the soil removal will be conducted as per RadCon and IH direction. The equipment will be visually inspected and surveyed by the RCT to verify removal of contaminated soil. For information describing contamination control and prevention and emergency decontamination procedures, refer to Section 10 of this HASP.

A-11. Emergency Response Plan

The FTL and HSO will be responsible to ensure Section 11 of this HASP is implemented prior to commencement of this project. This includes ensuring proper facility and emergency organization notifications are made prior to field mobilization. The following project-specific emergency response equipment will be available on site per Table A-11.1.

Table A-9.1. PPE requirements for OU 5-12 RD/RA Soil Site remediation projects.

Task or Assignment	Level of PPE	Modifications and Comments
Project Mobilization at all locations	Level D	All mobilization tasks in the support zone (SZ) will be conducted in Level D PPE meeting the minimum Environmental Restoration (ER) field work PPE requirements of hard hat, safety glasses, and sturdy leather boots above the ankle (with hand protection for material handling).
	Modified Level D	Modification will be per the task JSA or SWP for chemical concerns in the Exclusion Zone as determined by the Industrial Hygienist (IH) and the Radiological Work Permit (RWP) for radiological concerns per RadCon.
Performing Field Work/Soil Disturbances	Modified Level D	Modified Level D (protective clothing) per the task JSA or SWP for chemical concerns in the Exclusion Zone as determined by the Industrial Hygienists (IH) and the task RWP for radiological concerns per RadCon.
Demobilization	Level D	All demobilization tasks in the SZ will be conducted in Level D PPE meeting the minimum ER field work PPE requirements of hard hat, safety glasses, and sturdy leather boots above the ankle (with hand protection for material handling).
	Modified Level D	Modification will be per the task JSA or SWP for chemical concerns in contamination reduction zone/exclusion zone as determined by the IH and the RWP for radiological concerns per RadCon.

Table A-11.1. Emergency response equipment.

Equipment Name and Quantity Required	Location at Task Site	Responsible Person	Frequency of Inspection
Fire extinguishers	CRZ/EZ entrance	HSO	Monthly
First aid supplies	Support zone	HSO	Weekly
Eyewash station	Support zone	HSO	Monthly
Hazardous materials spill kit	Project vehicle, administrative trailer	HSO	Monthly
Communication equipment	FTL or project vehicle	HSO	Daily

Refer to Section 11 of this HASP for the emergency contacts and notification requirements. The FTL will ensure all personnel are aware of emergency information contained in Section 11 of this HASP during the project-specific HASP training.

Appendix B

Groundwater Monitoring for Waste Area Group 5

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Groundwater Monitoring for Waste Area Group 5

B-1. INTRODUCTION

This Operable Unit (OU) 5-12 Remedial Design/Remedial Action (RD/RA) Health and Safety Plan (HASP) appendix establishes the procedures and requirements that will be used to eliminate and/or minimize health and safety risks to personnel performing groundwater monitoring in Waste Area Group (WAG) 5. For information on the requirements of the Occupational Safety and Health Administration (OSHA) standard, 29 *Code of Federal Regulations* (CFR) 1910.120/1926.65, “Hazardous Waste Operations and Emergency Response (HAZWOPER),” see Section 1 of this HASP.

B-1.1. INEEL Site Description

For details on the location and operational history of the Idaho National Engineering and Environmental Laboratory (INEEL) and the Power Burst Facility/Auxiliary Reactor Area (PBF/ARA), see Section 1 and Figures 1-1 and 1-2 of this HASP.

B-1.2. Scope Of Work

Surveillance monitoring of the groundwater beneath the ARA and PBF facilities will resume as a component of the selected remedy for WAG 5 as specified in the *Final Record of Decision for Power Burst Facility and Auxiliary Reactor Area* (DOE-ID 2000), hereinafter referred to as the Record of Decision (ROD). Groundwater monitoring is not required to satisfy WAG 5 remedial action objectives or cleanup goals, but will reduce the uncertainty in previous sampling results and provide trend data to assess the possibility that an unidentified source of lead contamination is affecting the aquifer.

Groundwater monitoring samples will be collected, preserved, packaged, and analyzed as specified in the *Groundwater Monitoring Plan for the Waste Area Group 5, Remedial Action* (DOE-ID 2003). The WAG 5 well locations and groundwater gradient are shown in Figure B-1.

B-2. KEY SITE PERSONNEL RESPONSIBILITIES

The organizational structure of this project reflects the resources and expertise required to perform the work while minimizing risks to worker health and safety, the environment, and the general public. The key roles and lines of responsibility/communication are shown in Figure B-2, “The project organization chart.” Descriptions and responsibilities of the key site personnel are detailed in Section 2 of the HASP.

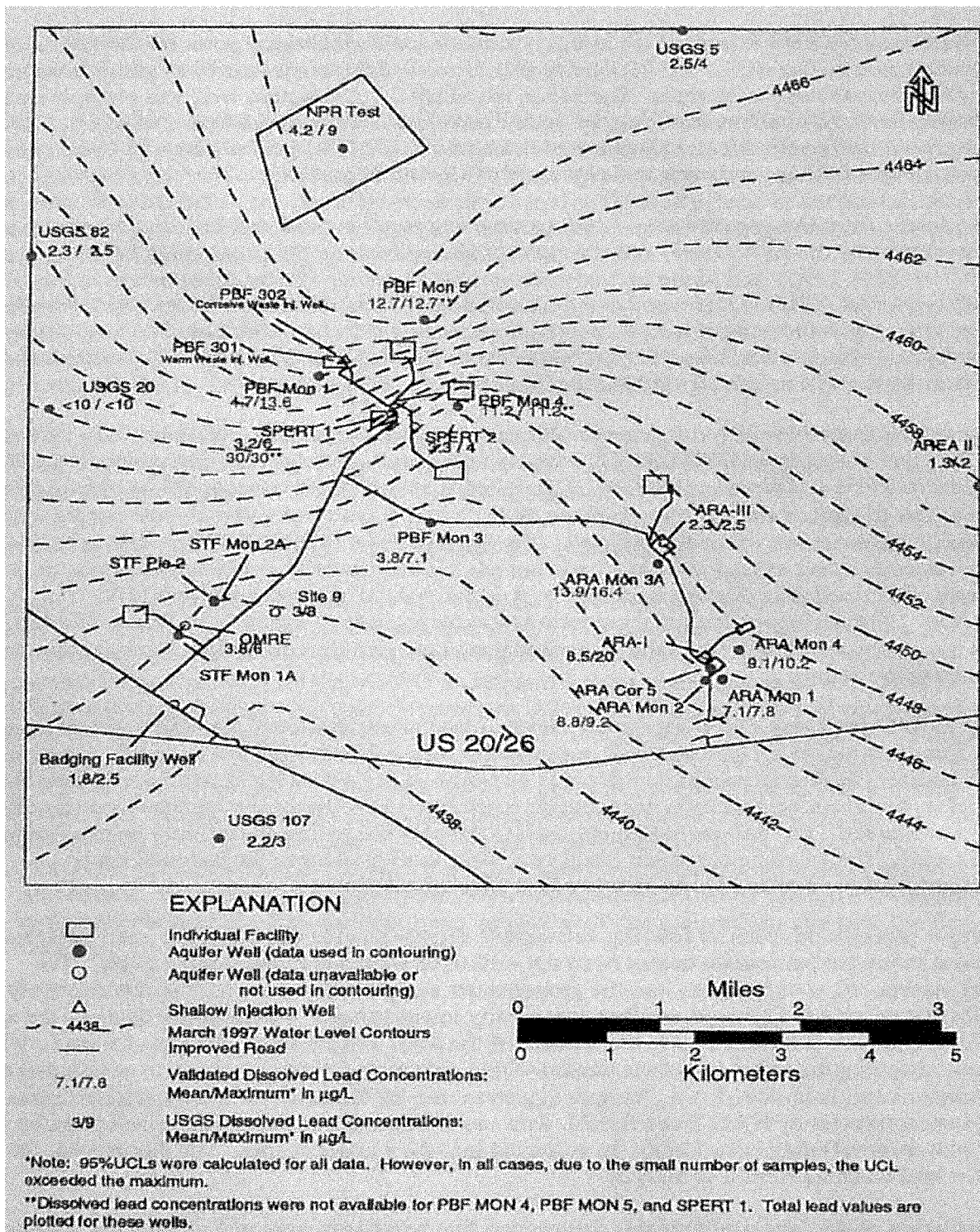


Figure B-1. Well locations and groundwater gradient in the Waste Area Group 5 area.

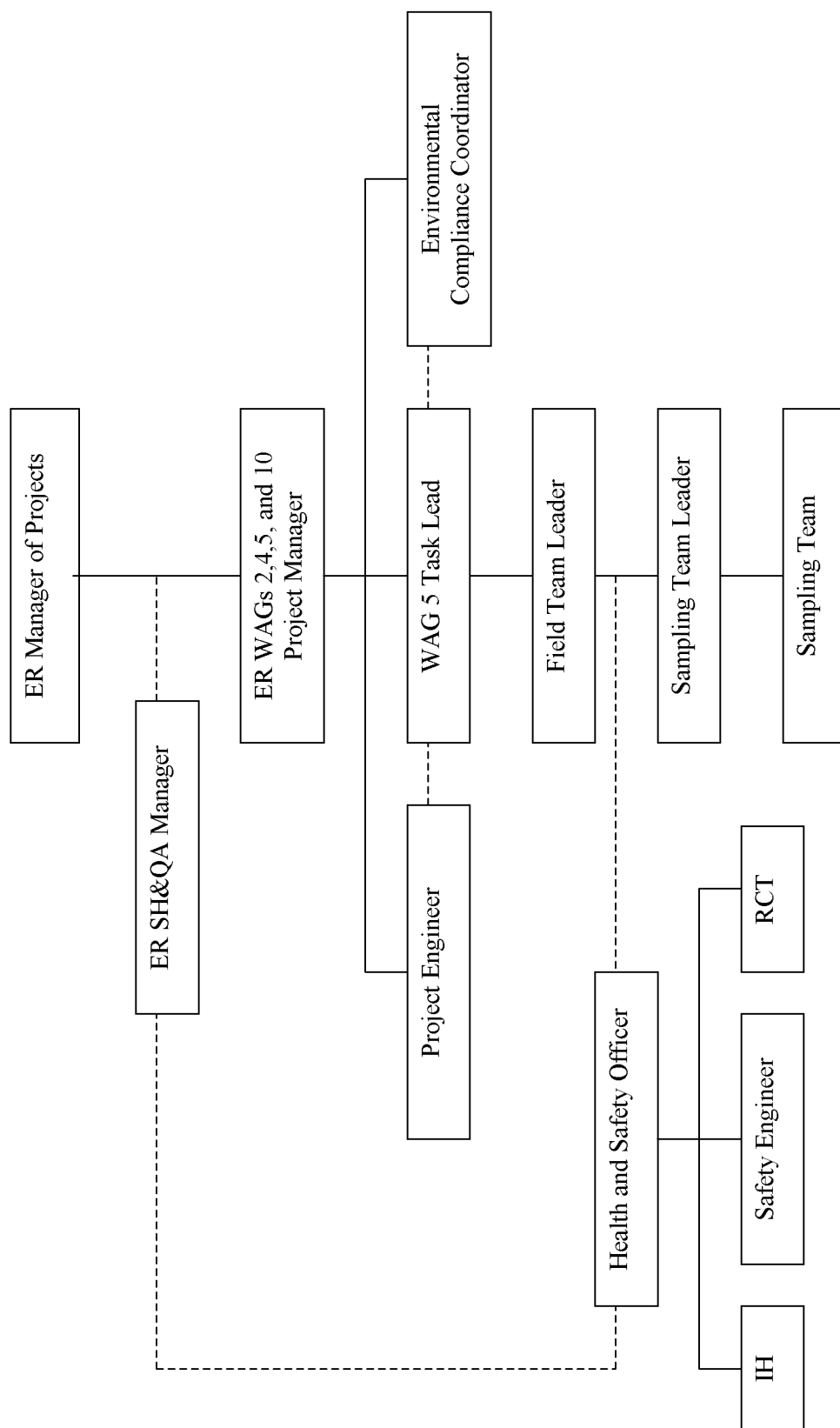


Figure B-2. Project Organization Chart.

B-3. RECORDKEEPING REQUIREMENTS

There are no site-specific changes for recordkeeping requirements. Refer to Section 3 of this HASP for requirements regarding recordkeeping for this project.

B-4. PERSONNEL TRAINING

All site personnel will receive training as specified in Section 4 and Table 4-1 of this HASP as a minimum. Before beginning work at the site, site-specific training will be conducted, including a complete review of the HASP and this appendix. This review will include time for discussion and questions. Upon completing site-specific training, personnel will read and sign the form indicating they have received this training, understand the tasks and associated hazards, and agree to follow the HASP and other safety requirement documents. The Field Team Leader (FTL) will be responsible for verifying all personnel working at the site have completed the training specified in Table 4-1 before permitting personnel to enter the worksite.

B-5. OCCUPATIONAL MEDICAL SURVEILLANCE PROGRAM

Based upon the existing site-specific sampling information available for this project, there are no additional Occupational Medical Surveillance Program requirements. Refer to Section 5 of this HASP for information regarding the INEEL Occupational Medical Surveillance program requirements.

B-6. ACCIDENT PREVENTION PROGRAM

The activities addressed in this appendix will be performed in accordance with approved work control documents that comply with Program Requirements Directive (PRD)-25, “Activity Level Hazard Identification, Analysis, and Control.” Refer to Section 6 of this HASP for information regarding the Accident Prevention Program requirements.

B-7. SITE CONTROL AND SECURITY

Refer to Section 7 of this HASP for descriptions of potential work zones and areas. The FTL shall be responsible for ensuring the sample site is adequately controlled to prevent unauthorized entry. The FTL shall consult with the Health and Safety Officer (HSO), Industrial Hygienist (IH), Safety Engineer (SE), and Radiological Control Technician (RCT) as applicable for establishing and posting work zones, as necessary, to maintain control of the sampling sites.

B-8. HAZARD ASSESSMENT

Section 8 of this HASP provides general information regarding the types of hazards that may be encountered while performing OU 5-12 RD/RA work. Specific hazards associated with the groundwater monitoring are presented in this section.

Table B-1 below summarizes the anticipated activities to be performed and the associated hazards.

Table B-1. Activities and Associated Hazards.

Activity or Task	Associated Hazards or Hazardous Agent
Mobilization	<p>Equipment movement/vehicle traffic</p> <p>Heat/cold stress</p> <p>Radiation/contamination exposure (soil contamination areas/radiologically posted areas)</p> <p>Slip/trip hazards due to walking/working surface</p> <p>Manual material handling</p>
Perform Sampling Activities	<p>Radiation/contamination exposure (soil contamination areas/radiologically posted areas)</p> <p>Chemical/inorganic contaminants</p> <p>Equipment movement/vehicle traffic repetitive motion/lifting during sample collection</p> <p>Sharp objects/laceration hazards</p> <p>Slip/trip hazards due to walking surfaces</p> <p>Biological hazards</p> <p>Heat/cold stress</p>
Demobilization	<p>Equipment movement</p> <p>Radiation/contamination exposure (soil contamination areas/radiologically posted areas)</p> <p>Slip/trip hazards due to walking surfaces</p> <p>Heat/cold stress</p> <p>Manual materials handling</p>

Section 8 of this HASP provides specific information on manual material handling, electrical safety, equipment movement, heat/cold stress, working surfaces, biological hazards, and radiation exposure. It is important for personnel to review this information and understand the potential hazards.

Based upon previous sampling results, the WAG 5 groundwater is not considered hazardous. The IH will be consulted if future sampling data changes and shall specify any special precautions or sampling requirements and ensure controls are adequately documented on a Safe Work Permit (SWP) or Job Safety Analysis (JSA). Before entering or working in soil contamination areas or posted radiological areas, the FTL shall ensure the field sampling personnel consults with the applicable Central Facilities Area (CFA) or PBF Radiological Control organization.

B-9. PERSONAL PROTECTIVE EQUIPMENT

The personal protective equipment (PPE) requirements for the OU 5-12 RD/RA Groundwater Monitoring is provided in Table B-2. Refer to Section 9 of this HASP for additional descriptions and requirements on PPE.

Table B-2. PPE Requirements for OU 5-12 RD/RA groundwater monitoring.

Task or Assignment	Level of PPE	Modifications and Comments
Project Mobilization at all locations	Level D	All mobilization tasks will be conducted in Level D PPE meeting the minimum Environmental Restoration (ER) field work PPE requirements of hard hat, safety glasses, and sturdy leather boots above the ankle (steel-toe boots and leather gloves for material handling tasks).
Performing Field Work	Modified Level D	All tasks will be conducted in Level D PPE meeting the minimum ER field work PPE requirements of hard hat, safety glasses, and sturdy leather boots above the ankle (steel-toe boots and leather gloves for material handling tasks). Sample handling can be performed using nitrile or rubber gloves to prevent skin contact with sample water.
Demobilization	Level D	All tasks will be conducted in Level D PPE meeting the minimum ER field work PPE requirements of hard hat, safety glasses, and sturdy leather boots above the ankle (steel-toe boots and leather gloves for material handling tasks).

B-10. DECONTAMINATION PROCEDURES

Every effort will be made to prevent the contamination of personnel and equipment through the use of engineering controls, good work practices, and personal protective equipment. The IH shall specify PPE requirements to prevent personnel contamination as well as specifying the sampling methods and decontamination process used. For information describing contamination control and prevention and emergency decontamination procedures, refer to Section 10 of this HASP.

B-11. EMERGENCY RESPONSE PLAN

The FTL and HSO shall be responsible to ensure Section 11 of this HASP is implemented before commencement of this project. This includes ensuring proper facility and emergency organization notifications are made prior to field mobilization. The following project-specific emergency response equipment shall be available on site per Table B-3.

Table B-3. Emergency Response Equipment.

Equipment Name and Quantity Required	Location at Task Site	Responsible Person	Frequency of Inspection
Fire extinguishers ^a	Project vehicle	FTL/Sample Team Leader	Monthly
First aid supplies	Project vehicle	FTL/Sample Team Leader	Monthly
Eyewash station or portable eyewash bottles	Project vehicle	FTL/Sample Team Leader	Monthly
Hazardous materials spill kit	Project vehicle	FTL/Sample Team Leader	Monthly
Communication Equipment	FTL or project vehicle	FTL/Sample Team Leader	Daily

a. Consult the assigned safety or fire protection engineer to determine appropriate type and quantity of fire extinguisher(s).

Refer to Section 11 of this HASP for the emergency contacts and notification requirements. The FTL shall ensure all personnel are aware of emergency information contained in Section 11 of this HASP during the project-specific HASP training.